Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for modulating sphingolipid-cholesterol microdomains in a patient in need of such modulation comprising:

administering to the patient at least one ganglioside, with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group; a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, and cholesterol molecules ~~derivatized on the OH function, and cholesterol~~ to which organic groups are added or substituted on the OH function and which is formed from cholesterol in only one reaction step, in an amount effective to increase the detergent solubility of proteins associated with sphingolipid-cholesterol domains,

wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

2. (Currently amended) A method for influencing the location of components and their function on/in the sphingolipid-cholesterol microdomains in a patient in need of such influencing comprising:

administering to said patient at least one ganglioside, with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell

membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, and cholesterol molecules ~~derivatized on the OH function, and cholesterol~~ to which organic groups are added or substituted on the OH function; in an amount effective to influence the location of components and their function on the sphingolipid-cholesterol microdomains, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

3. (Previously presented) The method according to claim 2, wherein said components are proteins.

4. (Previously presented) The method according to claim 3, wherein said proteins are anchor proteins, acylated proteins, Src kinases and/or cholesterol-anchored proteins and other raft proteins.

5. (Previously presented) The method according to claim 3, wherein said proteins are glycosylphosphatidylinositol anchor proteins, kinases of the Src family, influenca virus hemagglutin and other viral proteins and/or caveolin-1, 2 or 3 in the sphingolipid-cholesterol microdomain.

6. (Previously presented) The method according to claim 2, wherein said components are protein clusters and wherein said effective amount is a protein cluster disassembling effective amount.

7. (Previously presented) The method according to claim 1, wherein said at least one ganglioside is a bovine brain ganglioside, GM_1, GD1a, GD1b, GD3, GM2, GM3, GQ1a, GQ1b, or a globoside.

8. (Previously presented) The method according to claim 1, wherein at least one cholesterol derivative is administered.

9. (Withdrawn) A method for modulation of the sphingolipid-cholesterol microdomain which results in a change in membrane transport, signal transmission and/or cell adhesion properties and/or enzymic processes in a patient in need of such change comprising:

administering to said patient at least one ganglioside, with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide

atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, cholesterol molecules derivatized on the OH function, and cholesterol to which organic groups are added or substituted in an membrane transport signal transmission and/or cell adhesion properties and/or enzymic processes changing effective amount, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

10. (Withdrawn) A method for modulation of the sphingolipid-cholesterol microdomain which results in a change in the proteolysis of the amyloid precursor protein of Alzheimer's disease or modifying a prion protein in a patient in need of such change or modification comprising:

administering to said patient at least one ganglioside, with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, cholesterol molecules derivatized on the OH function, and cholesterol to which organic groups are added or substituted in an amount effective to change the proteolysis of the amyloid precursor protein of Alzheimer's disease or modify a prion protein, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a

cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

11. (Withdrawn) A method for modulation of the sphingolipid-cholesterol microdomain for preventing the phagocytosis of bacteria and parasites in mammalian cells comprising:

contacting said mammalian cells with an amount of at least one ganglioside, with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, cholesterol molecules derivatized on the OH function, and cholesterol to which organic groups are added or substituted, effective for preventing the

phagocytosis of bacteria and parasites, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

12. (Withdrawn) A method for modulation of the sphingolipid-cholesterol microdomain for preventing the uptake of viruses into mammalian cells and/or their transport and release comprising:

contacting said mammalian cell with an amount of at least one ganglioside with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate;

azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, cholesterol molecules derivatized on the OH function, and cholesterol to which organic groups are added or substituted, effective for preventing an uptake of viruses into mammalian cells and/or their transport and release, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

13. (Previously presented) The method according to claim 1 wherein at least one ganglioside is administered.

14. (Previously presented) The method according to claim 1 wherein at least one ganglioside which has a substitution or addition on the backbone chain is administered.

15. (Currently amended) A method for modulating sphingolipid-cholesterol microdomains in a patient in need of such modulation, comprising administering at least one ganglioside with or without a substitution or addition on the backbone chain, wherein said substitution or addition is selected from the group consisting of a monosaccharide; a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; and a quinone group; wherein said ganglioside occurs as a structural element of cell membranes in nerve cells or cholesterol derivative selected from the group consisting of cholesterol sulfate, cholesterol thiosulfate, and cholesterol molecules ~~derivatized on the OH function, and cholesterol~~ to which organic groups are added or substituted on the OH function; to the patient at a dose of from 3 mg to 30 mg per kg body weight per day, wherein said organic groups are selected from the group consisting of a halide atom bonded to an alkyl, alkenyl, alkynl or aryl radical; a primary, secondary or tertiary alcohol group; an ether group; a carbonyl function; a carboxylic acid group; a carboxylic anhydride group; a carbamoyl group;a haloformyl group; a cyano group; an ester group; a lactone group; benzyl; phenyl; tolyl; tosyl; a sulfonyl group, a primary, secondary or tertiary amino group; isocyanate; cyanate; thioisocyanate; thiocyanate; carbamate; azide; a diazo group; a quinone group; an oligopepetide

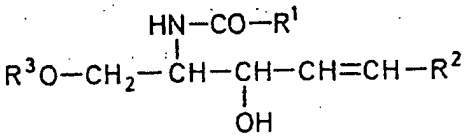
with 2-20 amino acid residues; an oligonucleotide; an amino acid; a monosaccharide; a disaccharide; and a polysaccharide.

16. (Previously presented) The method according to claim 14, wherein said at least one ganglioside is a-sphingosine or ceramide which has a substitution or addition on the backbone chain.

17. (Previously presented) The method according to claim 16, wherein said ganglioside comprises at least one monosaccharide unit, wherein said at least one monosaccharide unit is D-galactose, N-acyl-D-galactosamine, D-glucose or N-acetylneuraminic acid.

18. (Previously presented) The method according to claim 16, wherein said ganglioside is a sphingosine.

19. (Previously presented) The method according to claim 16, wherein said ganglioside is a ceramide of the formula:



wherein R^1 is a long chain C_6-C_{30} fatty acid residue, R^2 is a long chain C_6-C_{30} alkyl residue and R^3 is H or a glycoside.

20. (Canceled)

21. (Canceled)

22. (Previously presented) The method according to claim 19, wherein a functional group selected from the group consisting of an alcohol group, an ether group, a carbonyl function, a carboxylic acid group, a carboxylic anhydride group, a carbamoyl group, a haloformyl group, a cyano group, an ester group, a lactone group, a benzyl group, phenyl group, tolyl group, tosyl group, sulfonyl group, an amino group, an isocyanate, a cyanate, a thioisocyanate, a thiocyanate, a carbamate, an azide, a diazo group, a quinone group and a halide substituted alkyl, alkenyl, alkynyl or aryl radical, is substituted or added on the backbone chain.

23. (Canceled)

24. (Previously presented) The method according to claim 22, wherein the long chain fatty acid residue is a C_8-C_{24} fatty acid residue.

25. (Previously presented) The method according to claim 22, wherein the long chain alkyl residue is a C_8-C_{24} alkyl residue.

26. (Previously presented) The method according to claim 1, wherein said at least one cholesterol derivative is cholesterol sulfate or cholesterol thiosulfate.

27. (Previously presented) The method according to claim 1, wherein said at least one cholesterol derivative comprises at least one substituted or added organic group.

28. (Previously presented) The method according to claim 27, wherein said at least one organic group is an alcohol group, an ether group, a carbonyl function, a carboxylic acid group, a carboxylic anhydride group, a carbamoyl group, a haloformyl group, a cyano group, an ester group, a lactone group, a benzyl group, phenyl group, tolyl group, tosyl group, sulfonyl group, an amino group, an isocyanate, a cyanate, a thioisocyanate, a thiocyanate, a carbamate, an azide, a diazo group, a quinone group or a halide substituted alkyl, alkenyl, alkynyl or aryl radical.

29. (Previously presented) The method according to claim 8, wherein said at least one cholesterol derivative comprises at least one oligopeptide, oligonucleotide, amino acid, monosaccharide, disaccharide or polysaccharide.

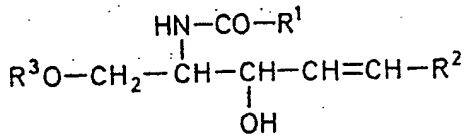
30. (Previously presented) The method according to claim 14, wherein said at least one ganglioside is an unsaturated sphinogosine or ceramide containing unsaturated or short C_2-C_{18} fatty acids.

31. (Canceled)

32. (Withdrawn) A pharmaceutical composition comprising at least one unsaturated sphingosine or ceramide, wherein said at least one unsaturated sphingosine or ceramide is structurally substantially identical to at least one unsaturated sphingosine or ceramide that is a constituent of a sphingolipid-cholesterol microdomain, and a pharmaceutically acceptable carrier therefore.

33. (Withdrawn) The pharmaceutical composition of claim 32, wherein the C1 oxygen of said sphingosine is substituted with a sugar moiety and the C2 amino group is substituted with a saturated or unsaturated fatty acid.

34. (Withdrawn) The pharmaceutical composition of claim 32, wherein the said at least one ceramide has the formula:



wherein R^1 is a long chain fatty acid residue, R^2 is a long chain alkyl residue and R^3 is H or a glycoside.

35. (Withdrawn) The pharmaceutical composition of claim 34, wherein the long chain fatty acid residue is a C_6-C_{30} fatty acid residue.

36. (Withdrawn) The pharmaceutical composition of claim 34, wherein the long chain alkyl residue is a C_6-C_{30} alkyl residue.

37. (Withdrawn) The pharmaceutical composition of claim 34, wherein a functional group is substituted or added on the backbone chain.

38. (Withdrawn) The pharmaceutical composition of claim 37, wherein said functional group is an alcohol group, an ether group, a carbonyl function, a carboxylic acid group, a carboxylic anhydride group, a carbamoyl group, a haloformyl group, a cyano group, an ester group, a lactone group, a benzyl group, phenyl group, tolyl group, tosyl group, sulfonyl group, an amino group, an isocyanate, a cyanate, a thioisocyanate, a thiocyanate, a carbamate, an azide, a diazo group, a quinone group or a halide substituted alkyl, alkenyl, alkynyl or aryl radical.

39. (Withdrawn) The pharmaceutical composition of claim 35, wherein the long chain fatty acid residue is a C_8-C_{24} fatty acid residue.

40. (Withdrawn) The pharmaceutical composition of claim 36, wherein the long chain alkyl residue is a C_8-C_{24} alkyl residue.

41. (Previously presented) The method according to claim 1, wherein said oligopeptide has 8-12 amino acid residues.

42. (Previously presented) The method according to claim 41, wherein said oligopeptide has 8, 10 or 12 amino acid residues.

43. (New) A method for modulating sphingolipid-cholesterol microdomains in a patient in need of such modulation comprising administering cholesterol sulfate to the patient in an amount effective to increase the detergent solubility of proteins associated with sphingolipid-cholesterol domains.

44. (New) A method for modulating sphingolipid-cholesterol microdomains in a patient in need of such modulation comprising administering cholesterol sulfate,

GM_1 or bbG to the patient in an amount effective to increase the detergent solubility of proteins associated with sphingolipid-cholesterol domains.